can at once see one's way superficially from consideration of the two classes of so-called water-gases dealt with on pp. 29 and 30.

The combustible value of these gases amounts per cubic metre of gas to

Water-gas I.

Water-gas II.

Calories.

0'5 cubic metre 00x3,063= 1,531

0-5 cubic metre H x 2,620= 1,310 Combustible value per cubic metre 2,841

Calories.

0-33 cubic metre CO-2 x 0 = 0 0-67 cubic metre H x 2,620= 1/755

Combustible value per cubic metre..... 1,755

Eor the total gas from 1 kilogramme C, however,

Calories.

1-86 cubic metre 00x3,063= 5,693 1-86 cubic metre H x 2,620= 4,868 3*72 cubic metres.

Combustile value of gas from 1 kilogramme 0 .10,561

1-86 cubic metre C0.2 3*72 cubic metres H

Calories.

0

. 9,736

5'58 cubic metres.

Combustible value of gas from 1 kilogramme C . 9,736

These numbers prove that the combustible value of the gas with formation of pure CO is decidedly superior to that of the gas, overburdened with formation of pure GQ^. The fuel is present in the first gas in a concentrated form, since it produces from 1 kilogramme C only 3*72 cubic metres gas, against 5*58 cubic metres in the second case.

As to the efficiency of the producer, one cannot of course form a judgment, since one obtains from 1 kilogramme C with a combustible value of 8,080 calories gas with a combustible value of 10,561, or alternatively 9,736 calories. Thus there has been more heat at disposal in the producer, than the carbon itself could evolve, but this excess-heat cannot be estimated in the absence of data as to the sensible heat possessed by the gases.

From the foregoing, it can be maintained that these sensible heats must be different—at least the temperature of C02-containing gas must be lower than that of the gas with